

I claim:

1. A system for rapid replacement of an abrasive material having two opposed edges in a surface finishing machine having a non-removable platen, comprising:

5 two rails, one on each longitudinal side of the platen, at least one of which is movable with respect to the platen;

the abrasive material being held between two removable mounts by a frictional element on each of its two opposed edges;

10 the mounts being shaped and sized to removably fit within the movable rails on each side of the platen.

15 2. The system of claim 1, in which at least one of the two movable rails moves between a first position in which the abrasive material is tightened around a working surface of the platen, and a second position in which the abrasive material is loosened and the mounts and abrasive material are removable from the surface finishing machine.

20 3. The system of claim 1, in which the movable rail is movable longitudinally away from the platen.

4. The system of claim 1, in which the movable rail is rotatable about its axis.

5. The system of claim 1, in which only one of the two rails is movable with 20 respect to the platen.

6. The system of claim 1, in which both of the two movable rails are movable with respect to the platen.

25 7. The system of claim 1, in which at least one edge of the abrasive material may be removed from its respective mount by removing its respective frictional element.

8. The system of claim 1, in which the mount comprises a channel within which at least one edge of the abrasive material is held by a frictional element in the form of a spline.
9. The system of claim 8, in which the spline has a cross-section that is one of 5 circular, elliptical, rectilinear, and wedge-shaped.
10. The system of claim 8, in which the spline comprises a synthetic resilient material.
11. The system of claim 1, in which any mount comprises extruded aluminum.
12. The system of claim 1, in which any mount comprises a hollow frame.
- 10 13. The system of claim 1, in which the frictional holding element is integrated into to the abrasive material.
14. The system of claim 1, in which the mount comprises at least one feature that extends from a base to grip the abrasive material by compression on at least one surface of the abrasive material.
- 15 15. The system of claim 1, in which the mount has a cross-section that is one of rectangular, circular, or oval.
16. The system of claim 1, in which the abrasive material has a constant grit rating throughout its extent.
17. The system of claim 1, in which the abrasive material has a plurality of values 20 of grit rating.
18. The system of claim 1, in which the abrasive material has two values of grit rating.
19. The system of claim 1, in which the abrasive material has a continuously variable value of grit rating.
- 25 20. The system of claim 1, in which the abrasive material comprises a plurality of pieces of material having differing values of grit rating.

21. A method of enabling rapid replacement of an abrasive material having longitudinally opposed edges in a surface finishing machine having a non-removable platen, comprising:
 - 5 providing the platen with a set of movable rails, one on each longitudinal side of the platen;
 - frictionally holding the abrasive material by each of its longitudinally opposed edges in respective mounts, the mounts being shaped and sized to fit within respective rails; and
 - 10 providing at least one movable rail to control tension of the abrasive material around a working surface of the platen during normal use of the machine, so that the tension may be reduced to enable the abrasive material to be removed from the machine.
22. The method of claim 21, further comprising moving at least one of the two movable rails from a first position in which the abrasive material was tightened around a working surface of the platen, to a second position in which the abrasive material is loosened, and further comprising removing the mounts and abrasive material from the surface finishing machine.
- 15 23. The method of claim 21, in which the tension reduction comprises moving movable rail longitudinally away from the platen.
- 20 24. The method of claim 21, in which the tension reduction comprises rotating the movable rail about its axis.
- 25 25. The method of claim 21, further comprising removing at least one edge of the abrasive material from its respective mount after removing its respective frictional element.
26. A combination of an abrasive material and a removable mount that frictionally secures a respective edge of the abrasive material within the mount, in which the mount is shaped and sized to fit within a rail located on one side of a non-removable platen of a surface finishing machine.

27. The combination of claim 26, further comprising a frictional element, and in which at least the edge of the abrasive material may be removed from its mount by removing the frictional element.
28. The combination of claim 27, in which the frictional holding element is integrated into the abrasive material.
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29. The combination of claim 26, in which the mount comprises a channel within which at least one edge of the abrasive material is held by a frictional element in the form of a spline.
30. The combination of claim 28, in which the spline has a cross-section that is one of circular, elliptical, rectilinear, and wedge-shaped.
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31. The combination of claim 29, in which the spline comprises a synthetic resilient material.
32. The combination of claim 26, in which the mount comprises extruded aluminum.
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33. The combination of claim 26, in which the mount comprises a hollow frame.
34. The combination of claim 26, in which the mount comprises at least one feature that extends from a base to grip the abrasive material by compression on at least one surface of the abrasive material.
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35. The combination of claim 26, in which the mount has a cross-section that is one of rectangular, circular, or oval.
36. The combination of claim 26, in which the abrasive material has a constant grit rating throughout its extent.
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37. The combination of claim 26, in which the abrasive material has a plurality of values of grit rating.
38. The combination of claim 26, in which the abrasive material has two values of grit rating.
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39. The combination of claim 26, in which the abrasive material has a continuously variable value of grit rating.
40. The combination of claim 26, in which the abrasive material comprises a plurality of pieces of material having differing values of grit rating.